

Adaptive Algebra 2 – Semester 1 practice exam

1) Solve the following inequality or equation. Write a solution, and graph the solution set on a number line.

a) $5 < 2x - 1 < 13$

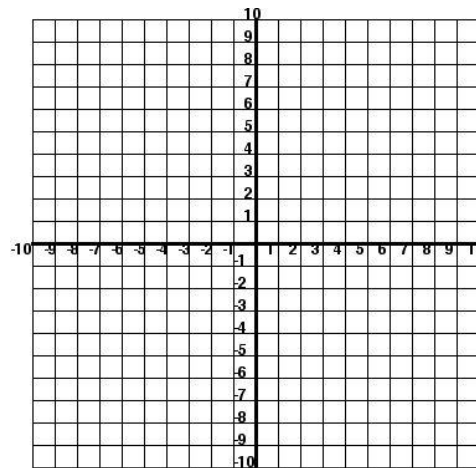
b) $|3x - 3| = 9$

2) Find the domain and range of the set of following points $\{(0,3), (2,1), (5,4), (6,9)\}$

3) Graph the following set of equations on the axis below. Make sure to pay attention to shading and boundary lines.

$$y - x > -4$$

$$y \leq 3x + 2$$



4) Find the equation in slope intercept form of the line that:

a. goes through the points $(1,1)$ and $(-2,-5)$

b. goes through $(4,6)$ and is perpendicular to $y = \frac{1}{2}x$

- 5) Simplify the following expressions so there are no negative exponents and only one of each variable.

a. $\left(\frac{k^2 \cdot s^3}{k^{-1}}\right)^2$

b. $m^5 m^{-2} m^4$

- 6) Solve the system of equations using any method:

$$4x + y = 7$$

$$2x + 5y = -1$$

- 7) Answer the following based on the function $f(x) = 2(x+3)^2 + 1$

a. Does the parabola open up or down? B. What is the vertex?

c. What is the axis of symmetry?

- 8) Answer the following based on the function $h(x) = x^2 - 2x - 8$

a. Will the parabola open up or down? B. what is the vertex?

c. What is the axis of symmetry?

D. What is the y-intercept?

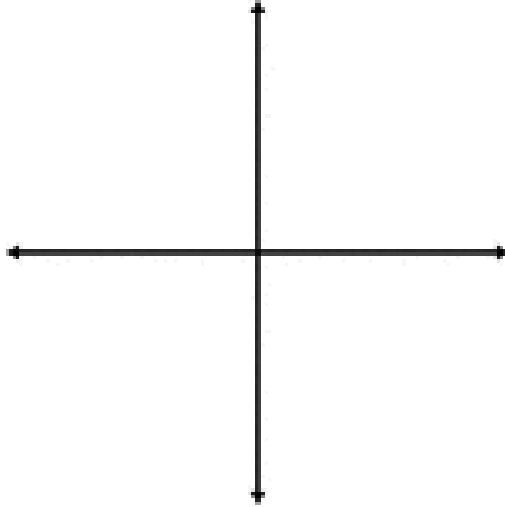
E. What are the x-intercepts?

10) Simplify into standard form of a polynomial

a) $(x - 2)(2x^2 - 3x - 3)$

b) $7m(m^4 + 2m - 6)$

11) Draw a graph that has a positive leading coefficient and an odd degree.



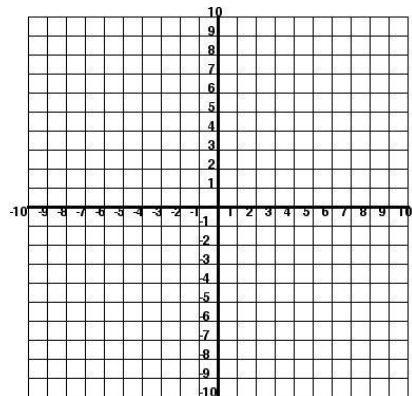
12) Find the zeros of the following polynomials.

a. $y = x^2 + 4x + 13$

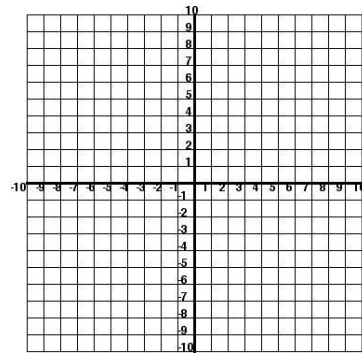
b. $y = (x + 1)^2 - 4$

13) Graph the following function and state the domain and range.

$y = |x - 2| + 4$

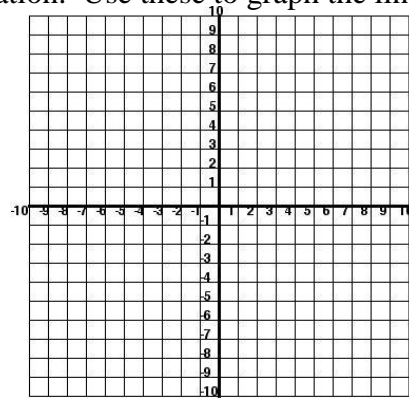


- 14) Make a scatter plot of 5 points that would have a negative correlation.



- 15) Solve the equation $4(3x - 1) = -3(2x + 8) - 4$

- 16) Find the x and y intercepts of the following equation. Use these to graph the line.
 $6x + 12y = 24$



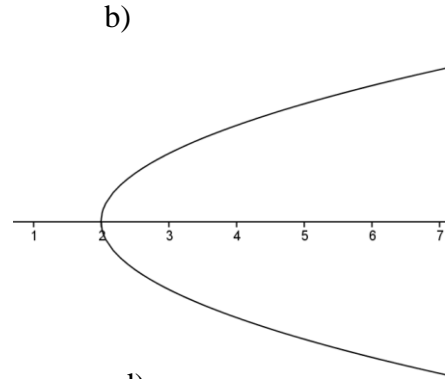
- 17) Using your calculator, what is the best fitting linear regression line for the following points:
(1, 7), (1, 6) (2,6) (3,5) (4,4) (5,5) (6,3) (7,2)

- 7) Circle the relations below that are functions.

X(input)	Y(output)
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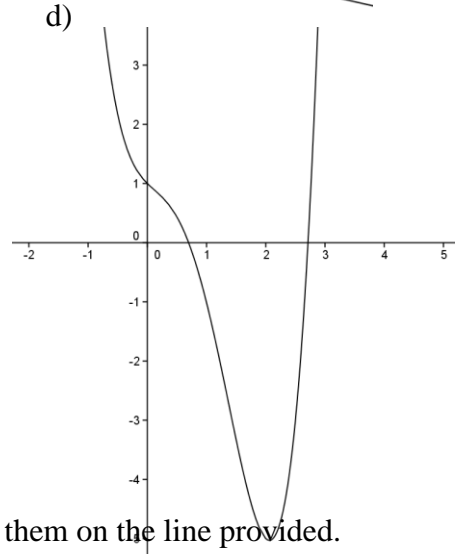
a)

1	3
2	7
3	5
1	3



c)

X(input)	1	2	1	3
Y(output)	11	17	12	17



7) Find the zeros/roots of the equations below and write them on the line provided.

a) $y = (x)^2 - 9$ b) $y = x^2 + 7x + 12$

Zeros: _____

Zeros: _____

11) Answer the following about the polynomial f , $f(x) = 3x^2 + 8x^4 - 10x + 22$

a) What is the standard form of f ? _____

b) What is the degree of f ? _____

c) What is the leading coefficient? _____